

LISTING OF CLAIMS

The listing of the claims will replace all prior versions, and listings of claims in this broadening reissue application.

1. A leg holder system for simultaneous positioning in an abduction dimension and a lithotomy dimension comprising:
 - a support device, having a longitudinal axis, for supporting a leg cradle;
 - a clamping device for mounting a proximate end of said support device to a mounting device having a first axis transverse to said longitudinal axis and selectively simultaneously clamping and releasing motion of said support device about said first axis and about a second axis transverse to both said first axis and said longitudinal axis, said support device fixed in said clamping device from rotation about said longitudinal axis;
 - an actuator device for actuating said clamping device to simultaneously selectively clamp and release said support device and said mounting device; and
 - an operator device remote from said clamping device and said actuator device for operating said actuator device to enable said support device to move jointly about both said first and said second axes in the abduction and lithotomy dimensions.
2. The leg holder system of claim 1 in which said clamping device includes a pair of pressure blocks, a first recess for receiving said mounting device and a second recess for receiving said support device.
3. The leg holder system of claim 2 in which said clamping device includes a biasing device for biasing said blocks to normally produce friction between said recesses and their respective mounting and support devices to clamp them in position.
4. The leg holder system of claim 1 in which said actuator device includes an actuator rod extending with said support device.
5. The leg holder system of claim 4 in which said support device includes a bore and said actuator rod is disposed in said bore.

6. The leg holder system of claim 4 in which said actuator device includes a camming device fixed to said actuator rod and a follower device disposed in said clamping device and responsive to said camming device for opposing said biasing device to simultaneously decrease the friction force on said support device and on said mounting device to release the clamping device in both axes.

7. The leg holder system of claim 1 in which said operator device includes a handle for both operating said actuator device to remotely release and secure said clamping device to said support device and said mounting device and to position said support device in the abduction and lithotomy dimensions.

8. The leg holder system of claim 1 in which said support device includes a resilient device for counterbalancing the weight borne by said support device.

9. The leg holder system of claim 6 in which said operator device includes a handle for both operating said actuator device to remotely release and secure said clamping device to said support device and said mounting device and to position said support device in the abduction and lithotomy dimensions.

10. The leg holder system of claim 9 in which the axis of said handle is coincident with the axis of said actuator rod for independent actuation of said clamp device and motion of said support device in the lithotomy dimension.

11. The leg holder system of claim 7 in which said handle includes a rotatable sleeve.

12. The leg holder system of claim 1 in which said support device includes a cradle bracket for mounting a leg cradle spaced from said longitudinal axis of said support means.

13. The leg holder system of claim 6 in which said actuator device includes a limiter device for arresting movement of said camming device before its highest position to enable said biasing device to back-drive said camming device when said operator device is released and automatically re-establish the clamping friction between said recesses and said support and mounting devices.

14. – 100 (Canceled)

101. A leg positioning apparatus comprising a mounting device configured to be attached to a surgical table, a support device having a longitudinal axis, the support device being hollow, a clamping device for mounting a proximate end of the support device to the mounting device having a first axis transverse to said longitudinal axis, the clamping device being configured to selectively simultaneously clamp the motion of the support device about the first axis and about a second axis transverse to both the first axis and the longitudinal axis and to selectively simultaneously release the motion of the support device for movement about said first and second axes, said support device being fixed in said clamping device from rotation about said longitudinal axis,

wherein the clamping device includes a plurality of clamping elements, at least one first clamping element of the plurality of clamping elements is movable between a first clamping position to prevent the motion of the support device about the first axis and a first releasing position to release motion of the support device about the first axis, at least one second clamping element of the plurality of clamping elements being movable between a second clamping position to prevent the motion of the support device about the second axis and a second releasing position to release motion of the support device about the second axis,

wherein the simultaneous motion of the support device about the first and second axes is permitted after the at least one first clamping device element is moved to the first releasing position and after the at least one second clamping device element is moved to the second releasing position,

wherein the simultaneous motion of the support device about the first and second axes is prevented after the at least one first clamping device element is moved to the first

clamping position and after the second clamping device element is moved to the second clamping position,

at least one actuator device configured to move the at least one first clamping device element and the at least one second clamping device element to the respective first and second releasing positions, at least a portion of the at least one actuator device extending within the support device,

an operator device situated adjacent a distal end of the support device, the handle being movable to actuate the at least one actuator device to move the first and second clamping device elements between the respective first and second releasing positions and the respective first and second clamping positions, and

a leg cradle supported by the support device between the operator device and the clamping device and movable about a plurality of leg cradle axes relative to the support device, wherein the leg cradle is movable about the first plurality of axes when the support device is clamped against movement about the first and second axes.

102. The leg positioning apparatus of claim 101, wherein the first axis about which the support device rotates corresponds to an abduction dimension and the second axis about which the support device rotates corresponds to a lithotomy dimension.

103. The leg positioning apparatus of claim 101, wherein the support device comprises an elongated tube.

104. The leg positioning apparatus of claim 103, wherein the operator device comprises a handle positioned adjacent the distal end of the elongated tube.

105. The leg positioning apparatus of claim 104, wherein the longitudinal axis of the support device passes through the handle.

106. The leg positioning apparatus of claim 103, wherein the portion of the actuator extending within the support device comprises a rod extending with the elongated tube.

107. The leg positioning apparatus of claim 106, wherein the rod is rotatable within the elongated tube to move at least one of the first and second clamping device elements to the unclamping position.

108. The leg positioning apparatus of claim 101, wherein one of the first and second clamping device elements comprises a housing formed to include a tapered bore and the other of the first and second clamping device elements comprises a pressure block configured to wedge against the tapered bore.

109. The leg positioning apparatus of claim 108, wherein the housing includes a recess configured to receive the mounting device and the pressure block being biased to tighten the recess of the housing against the mounting device.

110. The leg positioning apparatus of claim 109, wherein the clamping device includes at least one Belleville washer to bias the pressure block to wedge against the tapered bore.

111. A leg positioning apparatus comprising
a mounting device configured to attach to a surgical table,
a support device comprising an elongated member having a longitudinal axis,
a leg holder pivotably coupled to the support device and adapted to engage and support at least a portion of a leg of a patient,
a coupler configured to couple the leg holder to the elongated member, the coupler being configured to permit adjustment of a position of the leg holder relative to the elongated member about at least one leg holder axis,
a clamping device for mounting a proximate end of the elongated member to the mounting device having a first axis transverse to said longitudinal axis, the clamping device being configured to selectively simultaneously clamp the motion of the elongated member about the first axis and about a second axis transverse to both the first axis and the longitudinal axis and to selectively simultaneously release the motion of the elongated member for movement

about said first and second axes, said elongated member being fixed in said clamping device from rotation about said longitudinal axis,

wherein the clamping device includes a plurality of clamping elements, at least one first clamping element of the plurality of clamping elements is movable between a first clamping position to prevent the motion of the elongated member about the first axis and a first releasing position to release motion of the elongated member about the first axis, at least one second clamping element of the plurality of clamping elements being movable between a second clamping position to prevent the motion of the elongated member about the second axis and a second releasing position to release motion of the elongated member about the second axis,

wherein the simultaneous motion of the elongated member about the first and second axes is permitted after the at least one first clamping device element is moved to the first releasing position and after the at least one second clamping device element is moved to the second releasing position,

wherein the simultaneous motion of the elongated member about the first and second axes is prevented after the at least one first clamping device element is moved to the first clamping position and after the second clamping device element is moved to the second clamping position, and

an operator device comprising a handle coupled to the elongated member and operatively coupled to the clamping device, the coupler being positioned between the handle and the clamping device, the elongated member extending away from the clamping device beyond the coupler and the leg holder to a distal end, the handle being situated beyond the distal end of the elongated member and movable to move the first and second clamping device elements between the respective first and second clamping positions and the respective first and second releasing positions, and the handle being usable to reposition the elongated member about the first and second axes after the first and second clamping device elements are moved to the respective first and second releasing positions.

112. The leg positioning apparatus of claim 111, wherein the mounting device includes a post that defines the first axis.

113. The leg positioning apparatus of claim 112, wherein at least one of the first and second clamping device elements clamps against the post when the first and second clamping device elements are in the respective first and second clamping positions.

114. The leg positioning apparatus of claim 112, wherein the mounting device includes a block adapted to be coupled to an accessory rail of a patient-support table and the post is coupled to the block.

115. The leg positioning apparatus of claim 112, further comprising a resilient device configured to counterbalance weight supported by the leg holder, the resilient device being coupled to the mounting device, and the resilient device being coupled to the elongated member.

116. The leg positioning apparatus of claim 111, wherein the coupler is configured to be loosened for repositioning along the elongated member and tightened to prevent repositioning along the elongated member.

117. The leg positioning apparatus of claim 116, wherein the coupler is rotatable about the elongated member when loosened.

118. The leg positioning apparatus of claim 111, wherein the operator device is rotatable about the longitudinal axis of the elongated member to move at least one of the first and second clamping device elements between the respective first and second clamping position and the respective first and second releasing position.

119. The leg positioning apparatus of claim 111, further comprising a rod coupled to the operator device and extending therefrom toward the clamping device.

120. The leg positioning apparatus of claim 119, wherein the elongated member comprises a tube having a passage therethrough and at least a portion of the rod is positioned in the passage.

121. The leg positioning apparatus of claim 119, wherein a portion of the tube and a portion of the rod extend through the coupler.

122. The leg positioning apparatus of claim 111, wherein at least one of the first and second clamping device elements is yieldably biased against the mounting device when the first and second clamping device elements are in the respective first and second clamping positions.

123. The leg positioning apparatus of claim 111, wherein the mounting device comprises a post and at least one of the first and second clamping device elements comprises a housing formed to include a recess receiving the post and a gap extending therefrom such that increasing the size of the gap permits rotation of the housing relative to the post.

124. The leg positioning apparatus of claim 123, wherein the post defines the first axis and the housing is formed to include a bore defining the second axis.

125. The leg positioning apparatus of claim 124, wherein the first axis is spaced from the second axis such that the first and second axes do not intersect.

126. The leg positioning apparatus of claim 124, wherein at least one of the first and second clamping device elements comprises first and second pressure blocks received by the bore, the first pressure block being movable relative to the second pressure block within the bore, the first and second pressure blocks engaging the housing and being configured so that the movement of the first pressure block toward the second pressure block decreases the length of the gap of the housing and the housing grips the post, thereby blocking rotation of the housing relative to the post.

127. The leg positioning apparatus of claim 111, wherein at least one of the first and second clamping device elements includes a housing and the other of the first and second clamping device elements comprises a first pressure block received by the housing, a

second pressure block received by the housing, and a spring received by the housing and acting to yieldably bias the first pressure block toward the second pressure block.

128. The leg positioning apparatus of claim 127, wherein the first pressure block comprises a proximal end, a distal end, and a head formed on the distal end and the second pressure block comprises a proximal end, a distal end, and a head formed on the distal end, and wherein the first and second pressure blocks are movable between an inward position at which the head of the first pressure block and the head of the second pressure block frictionally engage the housing to block rotation of the first and second pressure blocks relative to the housing and an outward position permitting rotation of the first and second pressure blocks relative to the housing.

129. The leg positioning apparatus of claim 128, wherein at least one of the first and second pressure blocks is formed to include a bore receiving the elongated member so that the elongated member rotates relative to the housing when the first and second pressure blocks rotate relative to the housing and so that movement of the elongated member relative to the housing is blocked when the first and second pressure blocks are at the inward position.

130. The leg positioning apparatus of claim 128, wherein the mounting device includes a post, the housing is formed to include a recess receiving the post and a gap extending therefrom, the housing being flexible to increase the size of the gap to permit rotation of the housing relative to the post and movement of the first and second pressure blocks to the inward position decreases the gap thereby blocking rotation of the housing relative to the post.

131. The leg positioning apparatus of claim 111, wherein the one of the first and second clamping device elements include a housing and the other of the first and second clamping device elements include first and second pressure blocks that are received by the housing and that are movable relative to one another between an inward position at which the first and second clamping device elements are in the respective first and second clamping positions and an outward position at which the first and second clamping device elements are in the respective releasing positions.

132. The leg positioning apparatus of claim 131, further comprising an actuator device operatively coupling the operator device to at least one of the first and second pressure blocks, the actuator device being movable between a first position at which the first and second pressure blocks are at the outward position and a second position at which the first and second pressure blocks are at the inward position.

133. The leg positioning apparatus of claim 132, further comprising a rod coupled to the handle and coupled to the actuator device so that movement of the handle moves the actuator device.

134. The leg positioning apparatus of claim 131, wherein the actuator device includes an eccentric portion, one of the first and second pressure blocks comprises a follower portion, the eccentric portion engaging the follower portion to move the first and second pressure blocks to the outward position when the actuator device is rotated in a first direction.

135. A leg positioning apparatus comprising
a tube having a longitudinal axis,
a mounting device configured to attach to a surgical table,
a clamping device for mounting a proximate end of the tube to the mounting device having a first axis transverse to said longitudinal axis, the clamping device being configured to selectively simultaneously clamp the motion of the tube about the first axis and about a second axis transverse to both the first axis and the longitudinal axis and to selectively simultaneously release the motion of the tube for movement about said first and second axes, said tube being fixed in said clamping device from rotation about said longitudinal axis,
wherein the clamping device includes a plurality of clamping elements, at least one first clamping element of the plurality of clamping elements is movable between a first clamping position to prevent the motion of the tube about the first axis and a first releasing position to release motion of the tube about the first axis, at least one second clamping element of the plurality of clamping elements being movable between a second clamping position to

prevent the motion of the tube about the second axis and a second releasing position to release motion of the tube about the second axis,

wherein the simultaneous motion of the tube about the first and second axes is permitted after the at least one first clamping device element is moved to the first releasing position and after the at least one second clamping device element is moved to the second releasing position,

wherein the simultaneous motion of the tube about the first and second axes is prevented after the at least one first clamping device element is moved to the first clamping position and after the second clamping device element is moved to the second clamping position,
and

a leg holder coupled to the tube at a first distance away from the clamping device,
and

an operator device coupled to the tube at a second distance away from the clamping device, the second distance being greater than the first distance, the tube extending away from the clamping device beyond the leg holder to a distal end of the tube, the operator device being coupled to the tube near the distal end of the tube beyond the leg holder, the operator device being movable to move the first and second clamping device elements between the respective first and second clamping positions and the respective first and second releasing positions.

136. A leg positioning apparatus comprising

a mounting device configured to attach to a surgical table,

a support device lockable relative to the mounting device and releasable to rotate relative to the mounting device about a first plurality of axes, the support device being tubular and having a longitudinal axis,

a clamping device for mounting a proximate end of the support device to a mounting device having a first axis of the first plurality of axes transverse to said longitudinal axis, the clamping device being configured to selectively simultaneously clamp the motion of the support device about the first axis and about a second axis of the first plurality of axes transverse to both the first axis and the longitudinal axis and to selectively simultaneously release the

motion of the support device for movement about said first and second axes, said support device being fixed in said clamping device from rotation about said longitudinal axis,

wherein the clamping device includes a plurality of clamping elements, at least one first clamping element of the plurality of clamping elements is movable between a first clamping position to prevent the motion of the support device about the first axis and a first releasing position to release motion of the support device about the first axis, at least one second clamping element of the plurality of clamping elements being movable between a second clamping position to prevent the motion of the support device about the second axis and a second releasing position to release motion of the support device about the second axis,

wherein the simultaneous motion of the support device about the first and second axes is permitted after the at least one first clamping device element is moved to the first releasing position and after the at least one second clamping device element is moved to the second releasing position,

wherein the simultaneous motion of the support device about the first and second axes is prevented after the at least one first clamping device element is moved to the first clamping position and after the second clamping device element is moved to the second clamping position,

a leg holder lockable relative to the support device and releasable to move relative to the support device about a second plurality of axes,

a first handle coupled to the elongated member and operatively coupled to the clamping device, the support device extending away from the clamping device beyond the leg holder to a distal end, the first handle being situated beyond the distal end of the support member and movable to move the first and second clamping device elements between the respective first and second clamping positions and the respective first and second releasing positions, and the first handle being usable to reposition the elongated member about the first and second axes after the first and second clamping device elements are moved to the respective first and second releasing positions, and

a second handle movable to lock the leg holder from moving about the second plurality of axes relative to the support device and movable to unlock the leg holder for movement about the second plurality of axes relative to the support device.

137. The leg positioning apparatus of claim 136, wherein the second handle is positioned between the first handle and clamping device.

138. The leg positioning apparatus of claim 136, further comprising a resilient device configured to counterbalance weight supported by the leg holder, the resilient device being coupled to the mounting device, and the resilient device being coupled to the support device.

139. The leg positioning apparatus of claim 136, wherein the mounting device includes a block adapted to be coupled to an accessory rail of a patient-support table.